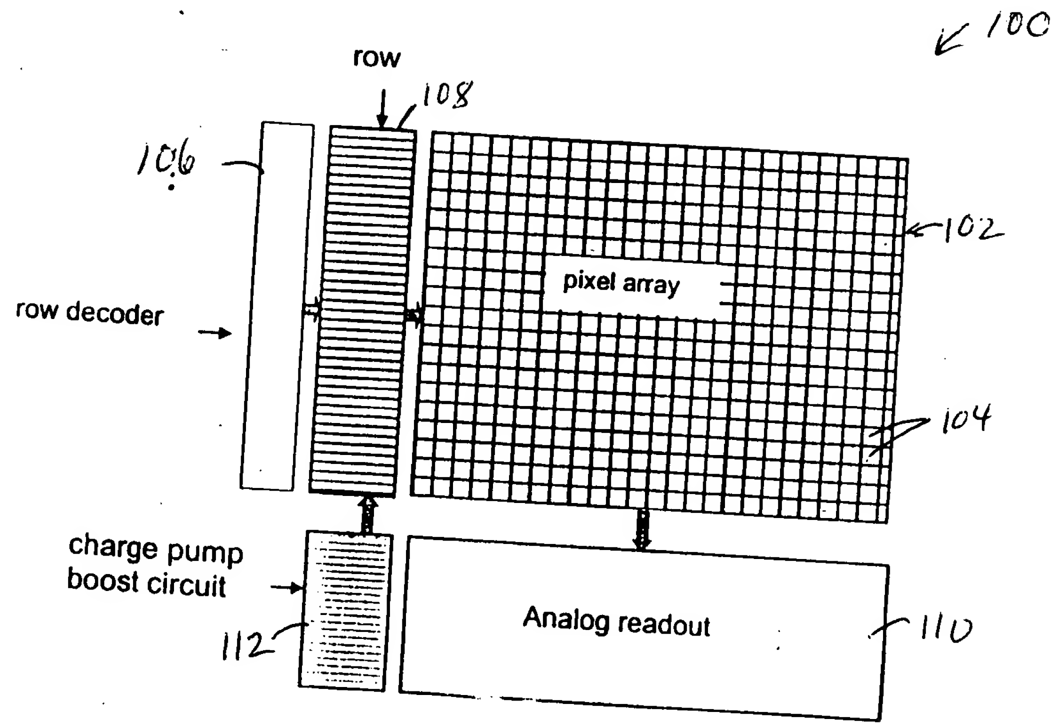
100
row
108
106
row decoder
pixel array
102
104
charge pump
boost circuit
112
Analog readout
110

FIG. 1

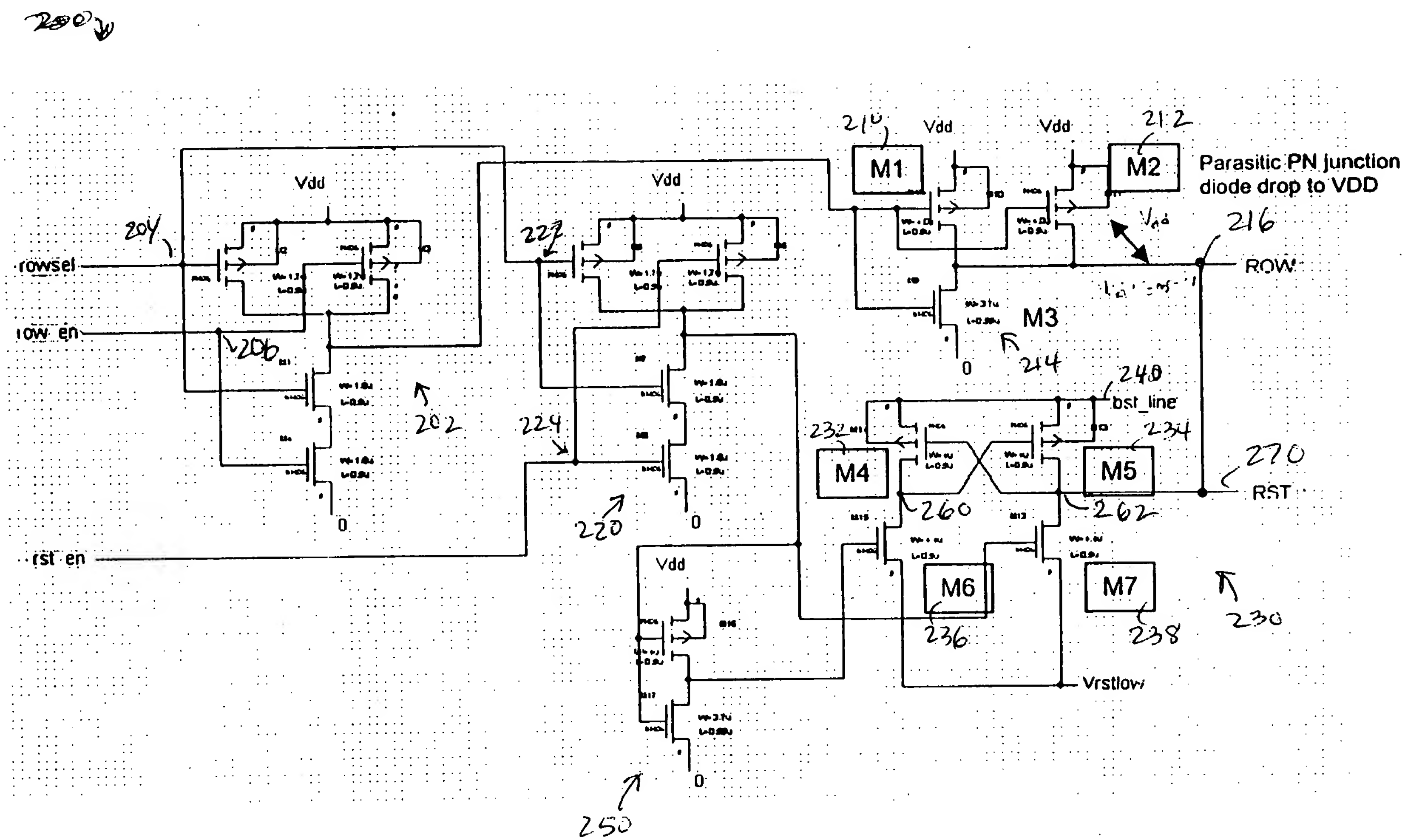
200
rowsel
row_en
rst_en
204
206
202
Vdd
222
224
220
Vdd
250
0
M1
M2
M3
M4
M5
M6
M7
210
212
214
216
232
234
236
238
240
260
262
270
230
Parasitic PN junction
diode drop to VDD
ROW
RST
bst_line
Vrstlow

FIG. 2

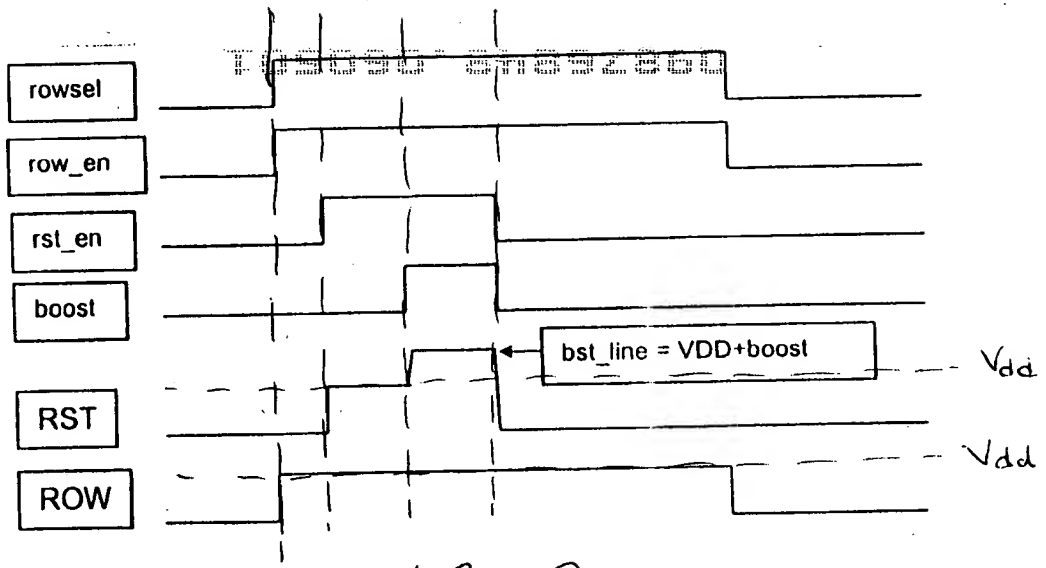
rowsel
row_en
rst_en
boost
bst_line = VDD+boost
Vdd
RST
Vdd
ROW

FIG. 3

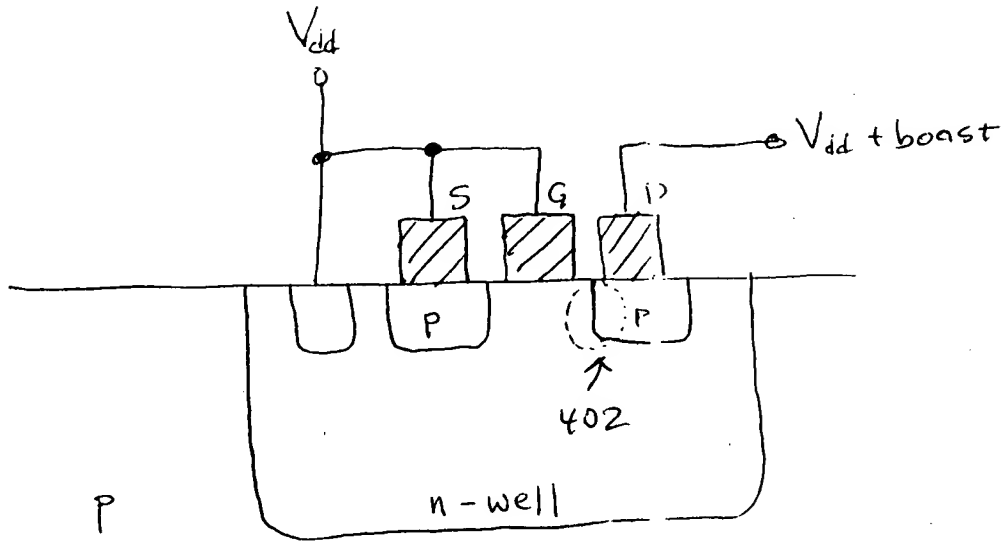
Vdd
Vdd + boost
S
G
D
P
P
402
P
n-well

FIG. 4

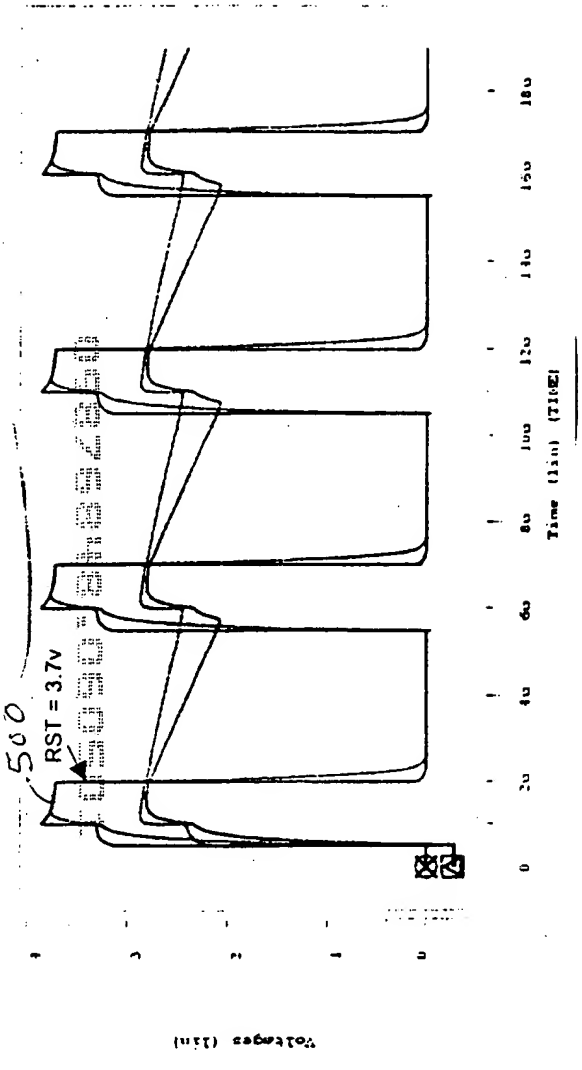
500
RST = 3.7v
Time (1ns) (TIME)
Voltages (1in)

FIG. 5

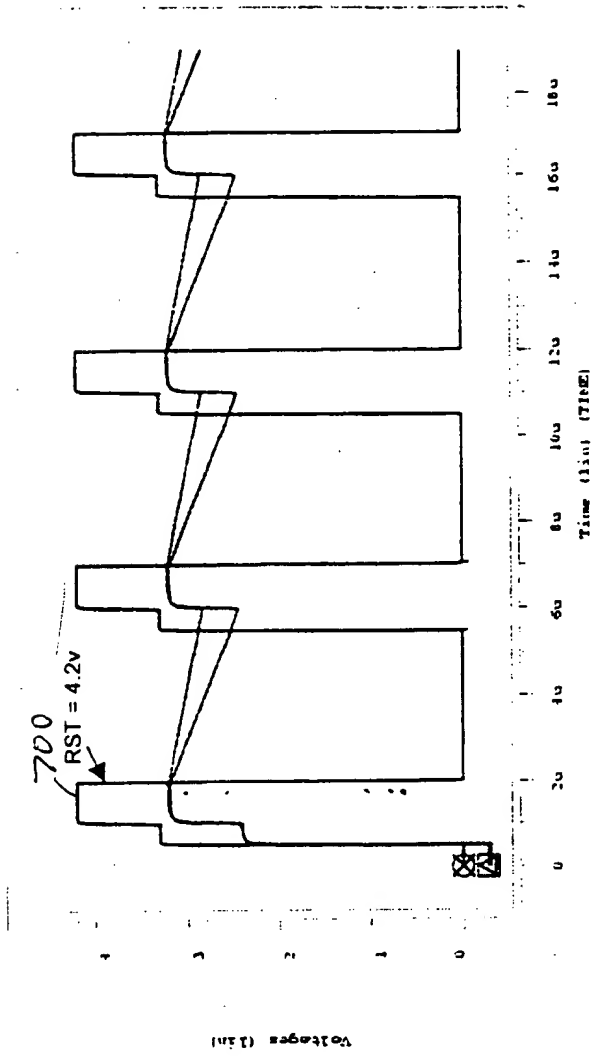
700
RST = 4.2v
Time (1ns) (TIME)
Voltages (1in)

FIG. 7

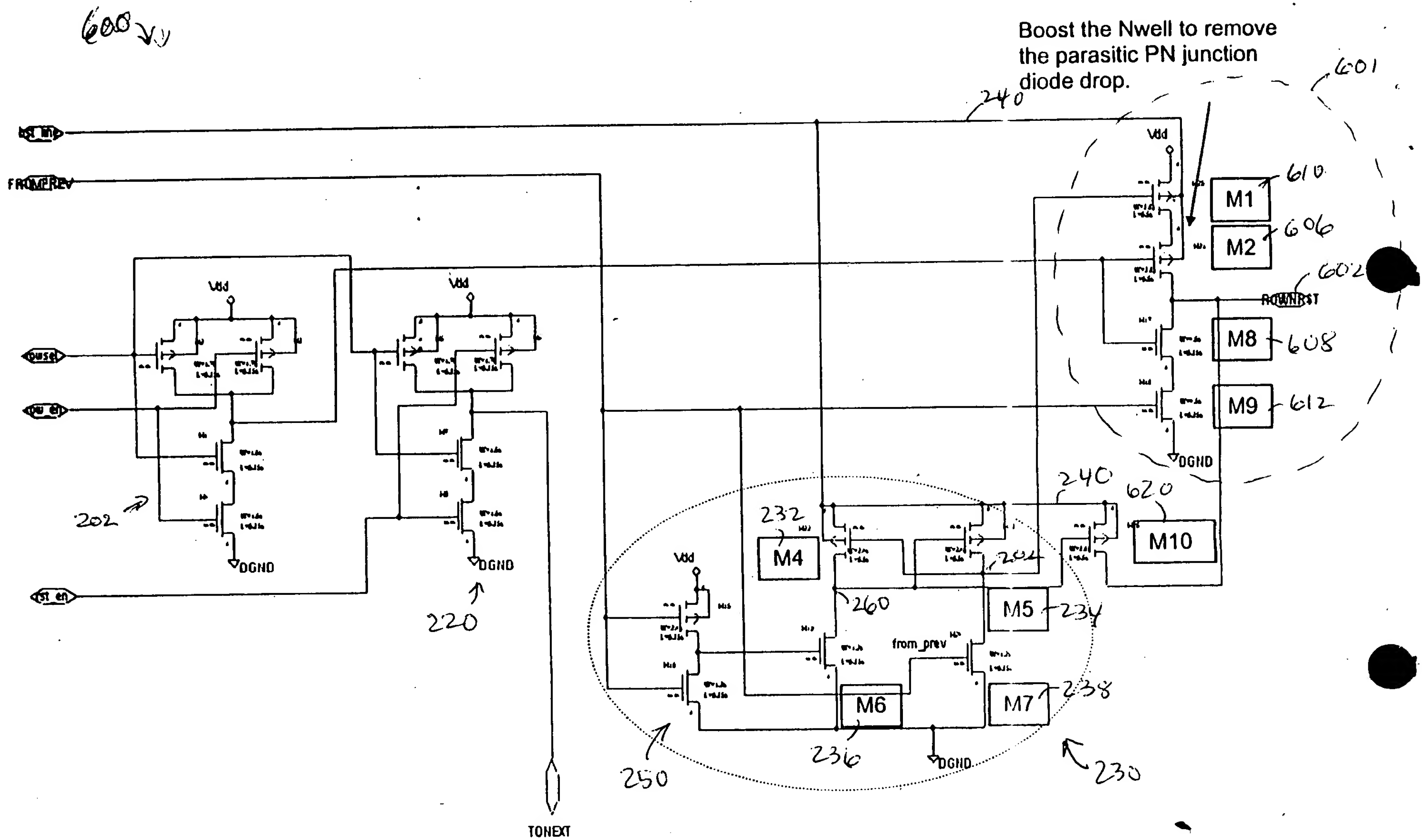
600
Boost the Nwell to remove the parasitic PN junction diode drop.
240
601
610
606
602
608
612
M1
M2
M8
M9
M10
620
ROWNRST
Vdd
DGND
FROMPREV
TONEXT
202
220
232
M4
M5
234
M6
236
M7
238
260
262
240
250
230
from_prev

FIG. 6